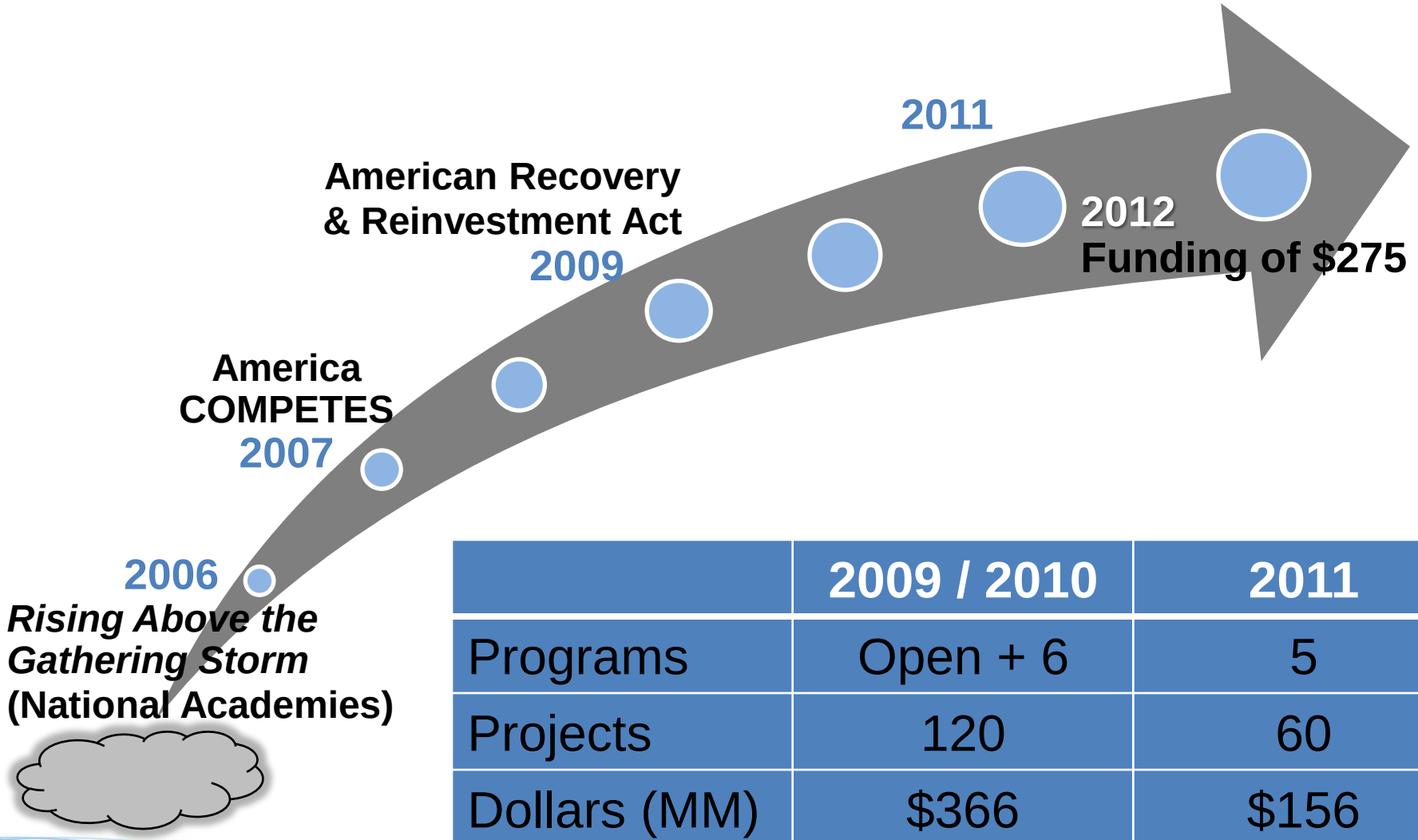
# Introduction to ARPA-E

Emerging Ideas Workshops

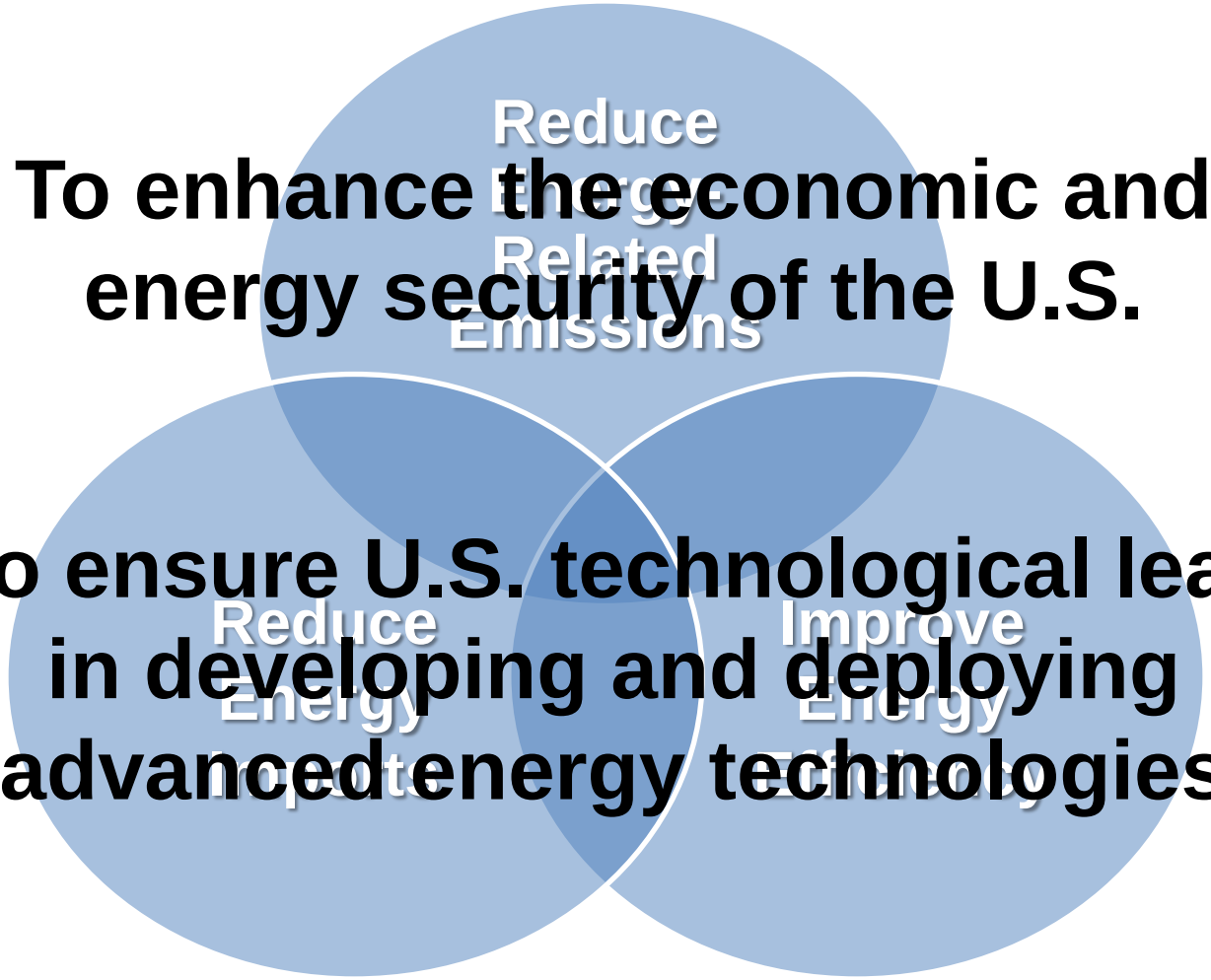
March 26-30, 2012

# Evolution of ARPA-E




| | 2009 / 2010 | 2011 |
|---|---|---|
| Programs | Open + 6 | 5 |
| Projects | 120 | 60 |
| Dollars (MM) | $366 | $156 |

# Mission

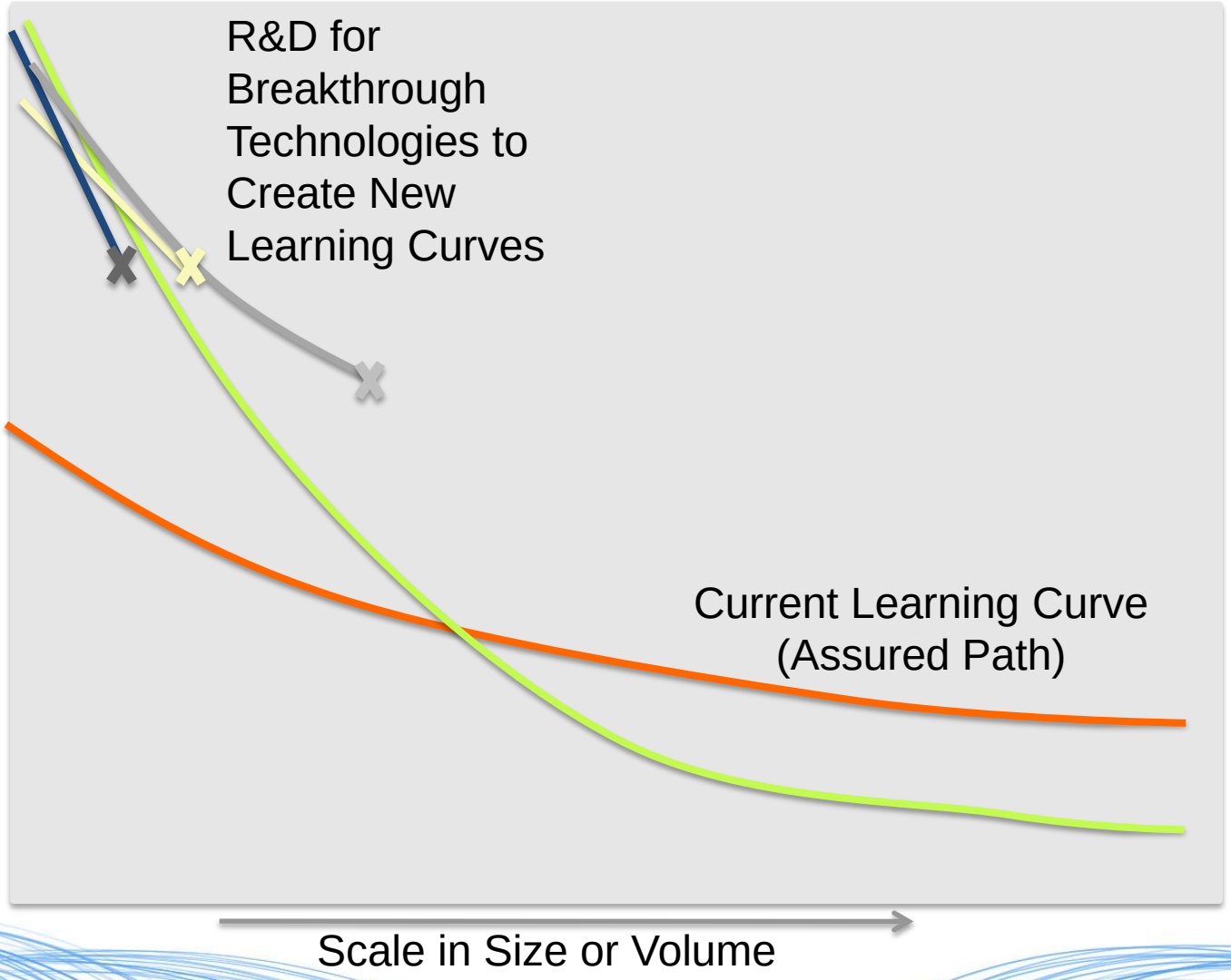



**To enhance the economic and energy security of the U.S.**

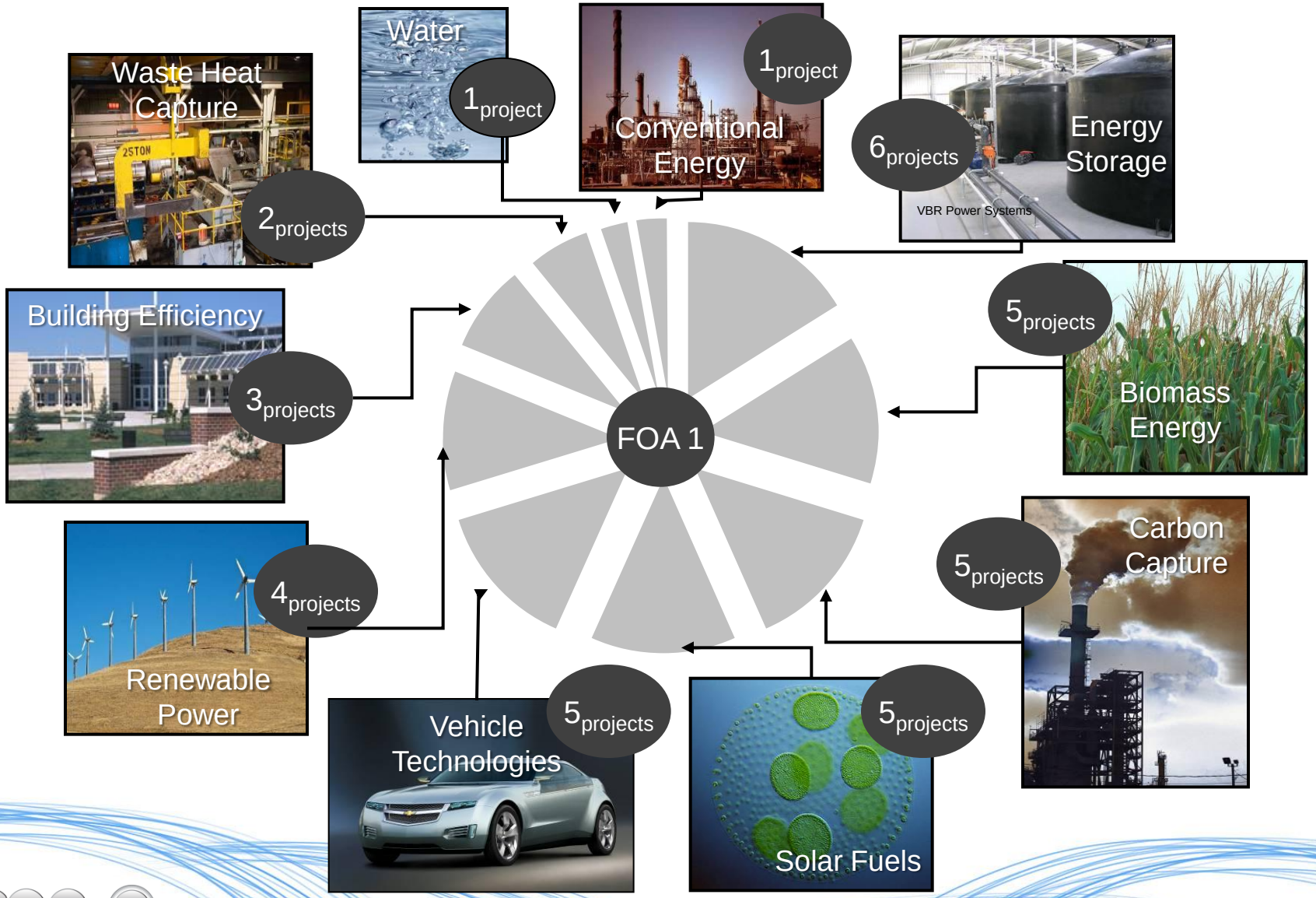
**To ensure U.S. technological lead in developing and deploying advanced energy technologies**

**Advanced Transformative Technologies**

# Creating New Learning Curves



# 10 Technology Areas within First Open FOA



# 11 Focused Programs

## Transportation

Electrofuels

BEEST

PETRO

## End-Use Efficiency

HEATS

BEETIT

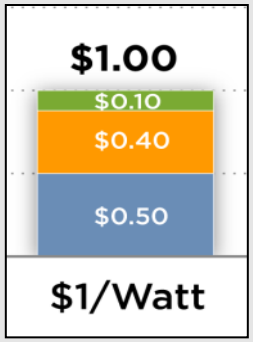
## Stationary Power

IMPACCT

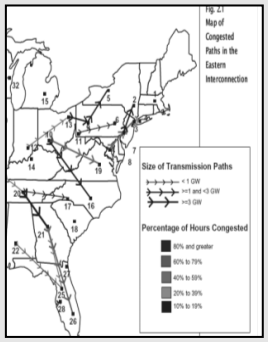
ADEPT

GRIDS

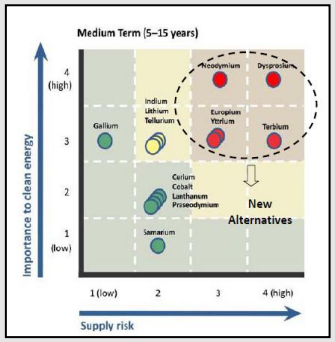
Solar ADEPT




GENI




REACT



# What makes an ARPA-E project?

## 1. Impact

- High impact on ARPA-E mission areas
- Credible path to market
- Large commercial application

## 2. Transform

- Challenges what is possible
- Disrupts existing learning curves
- Leaps beyond today's technologies

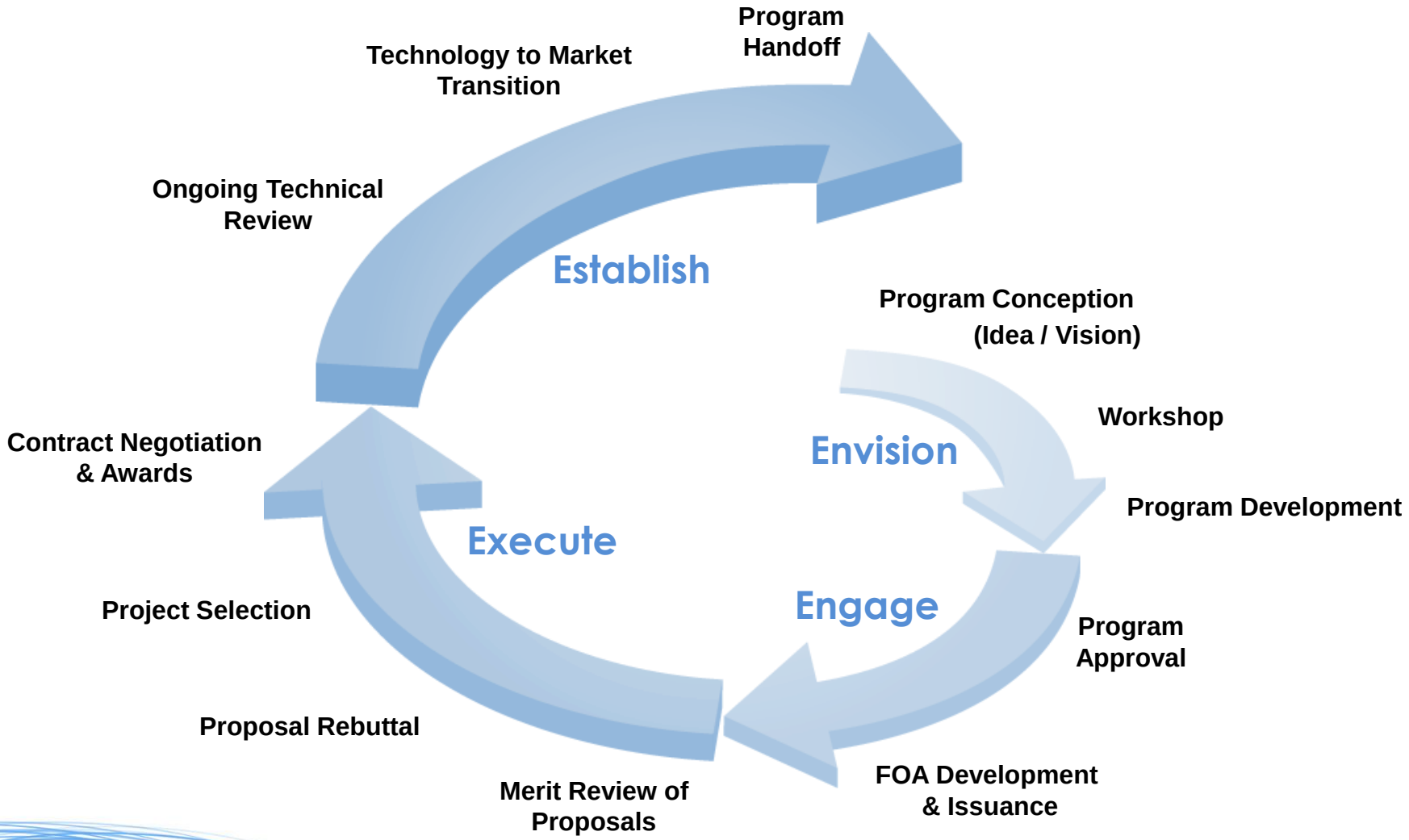
## 3. Bridge

- Translate science into breakthrough technology
- Not researched or funded elsewhere
- Catalyzes new interest and investment

## 4. Team

- Best-in-class people
- Cross-disciplinary skill sets
- Translation oriented

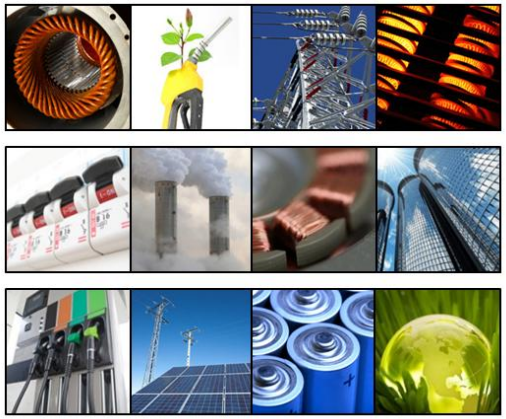
# Program Development Cycle



# Emerging Ideas Workshops

| Day | Mini-Workshop | Location |
|---|---|---|
| **Mar 26** | **PHOTON**<br>High-efficiency, high-concentration PV | **Virginia Square** |
| **Mar 27** | **TOPHAT**<br>High-temperature topping cycles | **Virginia Square** |
| **Mar 27** | **MICROBES**<br>New bioreactors for algae and Electrofuels | **ARPA-E** |
| **Mar 28** | **RACE**<br>Fast charging of EV batteries | **ARPA-E** |
| **Mar 28** | **ICEPOP**<br>Low water or no-water power plant cooling | **ARPA-E** |
| **Mar 29** | **SNIFFER**<br>Remote methane detection | **ARPA-E** |
| **Mar 30** | **PROPHET**<br>Advanced forecasting of wind/solar | **Virginia Square** |

# Distinction: Emerging Ideas Workshops vs. Typical ARPA-E Workshops/FOAs



***Typical Workshop/FOA***

- Thematically related topics
- Workshops: 50-100 people
- Each with individual program
- Program funding is $30 – $50 million
- Consists of 10-20 projects

***Emerging Ideas Workshops***

- Funding amount/mechanism undetermined
- Workshops: 10-40 people
- Ideas across areas compete with each other
- Best topics may go into a combined solicitation
- Best proposals of any topic are selected
- Topics may lead to a larger future program

# 2012 FOAs & RFIs

## Funding Opportunity Announcement (FOA)

- Open FOA Opportunity Announcement (**OPEN FOA**)
- Announcement of Teaming Partner List for Advanced Management and Protection of Energy-storage Devices (**AMPED**)

## Requests for Information (RFIs)

- Electrofuels Phase II